ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

April 1, 1958
Vol. 19...No. 4

Dear Sir:

Sales coverage of U. S. by Atomic Associates, Inc., New York, has now been extended to the entire United States except for the mid-central section, through recent expansion. Now being maintained are regional offices in Boston, Philadelphia, Pittsburgh, Washington, D. C., Atlanta, Los Angeles, and San Francisco, with the latter two under Atomic Associates of California. (Pioneering as atomic product sales representatives exclusively, Atomic Associates represents New England Nuclear Corp. for radioactive chemicals; R. S. Landauer Jr. & Co. for film badge service; Packard Instrument Co., Inc., and Pacific Electro-Nuclear Co. for nuclear instruments; and Atomic Accessories, Inc., for small units.) (Other PRODUCT NEWS, p. 3 this LETTER.)

New facility, Pool Critical Assembly (PCA), is now in use at Oak Ridge National Laboratory, Oak Ridge, Tenn., in nuclear research applications. Criticality studies and neutron flux patterns for the Oak Ridge Research Reactor (ORR) will be one of the primary functions of the PCA, which in effect will make it a mock-up for the ORR. Critical mass of the PCA at initial loading, using ORR type fuel elements containing 168 grams of uranium-235 per element, was 3.3 kg of uranium-235 in 18-fuel elements. (Other EXPERIMENTAL WORK, p. 2 this LETTER.)

Efforts of the Canadian government to ensure world markets for output of its uranium mines were described by Richard E. Barrett of Eldorado Mining & Refining, Ltd., before the recent Prospectors & Developers convention held in Toronto, Canada. Mr. Barrett noted that Canada's uranium oxide production is expected to reach its rated capacity of 15,000 tons per year in 1958. New markets will be necessary, he observed, since Eldorado's contracts with the mines (under which it will buy upward of $1.4 billion of uranium oxide from them) run only until Mar. 31, 1962 and not later than Mar. 31, 1963. Sales agreements with Britain and W. Germany have already been negotiated, he stated, and one with Switzerland is being negotiated. Although the present uranium requirements of these countries is small, he said it was expected their purchases would become important as the nuclear program developed. (Other RAW MATERIAL NEWS, p. 5 this LETTER.)

Regional meeting on Nuclear Metallurgy, sponsored by the American Society for Metals (Washington, Baltimore and York, Pa., chapters) is scheduled for May 19, 1958 in Washington, D. C. Papers will include Power Applications of Atomic Energy by Clark Goodman (division of reactor development, USAEC); Materials Problems in Nuclear Reactors, by Henry Hausner (independent nuclear energy consultant, New York); and Radiation Effects on Materials by William A. Maxwell (nuclear division, The Martin Co., Baltimore). Further information is obtainable from N. C. Fick, 836 24th St., S. Arlington, Va. (Other MEETINGS, COURSES, CONFERENCES, p. 4 this LETTER.)

American shipping firms have now been invited by the USAEC to advise the Commission of their interest in operating the country's first nuclear powered merchant ship, the NS Savannah. Since the vessel is scheduled to be in operation by 1960, the USAEC and the Maritime Administration want an operating contract by June 1, 1958. (Other BIDS ASKED, CONTRACTS AWARDED, p. 2 this LETTER.)

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RESEARCH & EXPERIMENTAL WORK...

NEW RESEARCH REACTOR IN OPERATION:- New research reactor, at Oak Ridge National Laboratory, is now in operation having gone critical last fortnight. Known as the Oak Ridge Research Reactor, it is a heterogeneous type, moderated and cooled with demineralized water. Designed to operate at a power level of 20,000 to 30,000 kw of heat energy, the reactor has a beryllium-reflected core which uses enriched uranium fuel elements of uranium-aluminum alloy clad with aluminum. Its high flux will allow research and engineering studies on reactor materials. Detailed design of the reactor was done by the McPherson Co., of Greenville, S. C., with Blount Bros. Construction Co., Knoxville, Tenn., constructing the reactor and the building housing it. Overall cost was about $5 million.

HEAVY WATER FOUND TO INHIBIT REPRODUCTION:- Heavy water has been found to affect growth, reproduction, and cancer in biological systems, Melvin Calvin, professor of chemistry at University of Calif., Berkeley, told recent New York section meeting of American Chemical Society. Dr. Calvin and his group found that when chlorella (single celled green algae) were grown in water containing 33% deuterium the cells grew about 10 times larger than normal but failed to divide. After about 6-months, chlorella could be adapted to slow division even with water containing 60% deuterium. With 95% deuterium, however, the capacity to divide ceased. When male and female mice were fed deuterium-enriched water, all males tested were incapable of fertilizing normal females. The effect was less on females, but 40% of some strains were made sterile. After a switch back to ordinary water, the reproductive capacity returned.

ATOMIC ENERGY BUSINESS NEWS...

CONTRACTS AWARDED & BIDS MADE:- With a proposal of $1,025,000 for the job, John P. Hopkins Co., Inc., Mercer Island, Washington, was the apparent low bidder among eleven received for Phase I construction work on the plutonium recycle test reactor at Hanford Works, Washington..... Building construction contract in amount of $502,000 was awarded by USAEC's Hanford operations office to Elvrum Construction Co., Pasco, Washington. Job involves construction of one story building in the town of Richland. .....(The USAEC's solicitation of interest in a research and development program designed to produce new types of reactor control rods has produced inquiries from some 40 firms, according to the Commission's Chicago operations office.)

MIDWEST ADVERTISING AGENCY TO OFFER SPECIALIZED NUCLEAR SERVICE:- The Chicago advertising and public relations firm of Vaughan, Thain and Spencer, Inc., is now ready to offer firms in the nuclear field market analysis and development services and to handle their advertising and public relations. According to the agency's president H. A. Vaughan, he now has trained staff to handle such jobs. Mr. Vaughan said he already has several insurance accounts, some of which are providing coverage for industries in the nuclear field, and wants to make nuclear energy his second field of specialization.

AIRCRAFT & NAVAL REACTOR BRANCHES OF USAEC IN ADMINISTRATIVE CHANGES:- Changes recently made by the USAEC will consolidate administrative and technical supervision in the Commission's aircraft and naval reactors branches of its division of reactor development. In Pittsburgh, the area office is now an operations office under the division's naval reactors branch, and has the new name of Pittsburgh naval reactors operations office. Other changes, to be made about July 1st, will result in the Schenectady unit being known as the Schenectady naval reactors operations office; the Lockland unit becoming Lockland aircraft reactors operations office; and the Hartford unit the Hartford aircraft reactors area office. (Area office at Princeton University is being set up by the USAEC to handle the administrative work in connection with the controlled thermonuclear and other research projects at Princeton which the Commission is financing.)

ASSISTANCE TO STATES IN RADIATION HANDLING TO BE RENDERED BY NEW DIVISIONS:- New Division of Radiological Health in the Public Health Service will now provide technical assistance to state agencies in dealing with medical, industrial and other activities involving public exposure to ionizing radiation. Under the new division, the PHS will expand its radiation staff to 76 persons, and operate with a budget of $600,000 in fiscal 1959. (First activity of the PHS in this field was 10 years ago when its radiation unit consisted of one physician and a secretary. Staff is now 51 persons -- shortly to grow to 76 -- with a budget of $400,000.)

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

PRODUCTS FROM MANUFACTURERS:- Trade-named Charco Rad-Bar is a new leaded Neoprene glove, for protection from ionizing radiation. Manufactured by dipping lead-loaded Neoprene, their resultant density of 3.95 grams per cc. is said to make them capable of attenuating soft gammas as much as 86%. Also produced by this manufacturer is the Neo-Sol brand glove for specific use in nuclear dry boxes, etc. --Charleston Rubber Co.; Charlotte, S.C.

New nuclear data processing instrument, trade-named RCLiac-128, is recommended by manufacturer for such laboratory applications as isotope identification and decay studies, neutron time-of-flight and pulsed neutron reactor response studies, etc. The instrument, basically, counts all alpha, beta and gamma rays emitted by radioactive materials and counts gamma rays and differentiates among them by determining their energy. --Radiation Counter Laboratories, Inc., Skokie, Ill.

Van de Graaff particle accelerator, Model PN-250, is compact machine designed especially for pulsed neutron output in conjunction with sub-critical assemblies, reactor design studies, and nuclear engineering training. Energy rating is nominal 0.25 MEV. --High Voltage Engineering Corp., Burlington, Mass.

EQ Paks offered by this processor of radiochemicals are quantities of radiocarbon compounds which are exempt from USAEC license. This supplier points out that use of the EQ Pak avoids delays due to licensing procedures, and has made most of his carbon-14 compounds available in the EQ Paks. --Tracerlab, Inc., Waltham 54, Mass.

PRODUCT & PROCESS NOTES:- A dual-purpose 10-kw research and training reactor is now being offered by ACF Industries, Inc., New York. Pre-fabricated (except for shielding) for erection on site, it is believed that its price of approximately $180,000 complete makes it competitively priced in this field.

Facilities for decontamination of radioactive mechanisms and assemblies have been set up by Fairchild Camera and Instrument Corp., Syosset, N.Y., and are presently in operation. Apparatus which has been handled by the decontamination group of Fairchild's nuclear instrumentation department includes valves, pumps, small heat exchangers and tubing, turbine blading, pump parts, and control rod drive mechanisms. After such decontamination, normal machine shop procedures may be used to rebuild worn or damaged parts of nuclear mechanisms; substantial savings are reported by Fairchild as a result of such reworking of apparatus.

MANUFACTURERS NEWS:- Nuclear engineering laboratory of American Machine & Foundry Co. has been consolidated with AMF's Atomics Division, at Greenwich, Conn. O. A. Schulze, laboratory manager, is head.

NUCLEAR DEVELOPMENT OUTSIDE THE UNITED STATES...

GREAT BRITAIN:- Now being designed by Mitchell Engineering Co. is a nuclear powered underwater tanker with a displacement of between 80,000 and 100,000 tons, capable of speeds of 40 to 50 knots. Model tests on the vessel have been completed, according to Frederick Mitchell, company chairman. Among novel design features are unique placement of propellors which reportedly would be mounted forward on top of the hull and provide pulling force.

Plant is under design by British Oxygen Engineering, Ltd., which will be installed at the Dounreay project of the U. K. Atomic Energy Authority to purify the argon used as an inert atmosphere. The British Oxygen process consists of injecting hydrogen into the impure gas to remove oxygen in the form of water followed by low temperature distillation for nitrogen removal. Refrigeration for the process is by the use of liquid oxygen; two small liquid oxygen plants and a liquid oxygen storage vessel will be provided by British Oxygen.

Bids are due July 31st, 1958 from the three consortia of British industrial firms which have been invited by the Japan Atomic Power Co. to bid on supplying nuclear power plant for installation in Japan. The three consortia, (1) General Electric-Simon Carves atomic energy group, (2) A.E.I.-John Thompson Nuclear Energy Co., Ltd., and (3) English Electric, Babcock & Wilcox, and Taylor Woodrow, are modifying British nuclear power plant design to include the special requirements of the Japanese. These are centered about earthquake resistance, and consist of special supporting members, and other design changes to provide strength and flexibility without impairing the reactor economics. Certain other requirements further modify the basic British design, according to the specifications for inviting bids.

MEETINGS, COURSES, CONFERENCES...on nuclear subjects...

MEETINGS:- Fourth annual meeting of the American Nuclear Society is scheduled for June 2-5, 1958 in Los Angeles. Attendance of between 1200 and 1500 is expected; total membership of the Society is now around 3,000. Further information on this meeting may be obtained from R. L. Loftness, Atomics International, P. O. Box 309, Canoga Park, Calif.

Society of Nuclear Medicine plans to hold its fifth annual meeting in Los Angeles June 19-21, 1958. The society's program committee is now considering some 70 papers covering diagnostic, therapeutic, or fundamental research implications or applications. The formal sessions will also include four instructional courses that will be offered in two days. They will deal with thyroid-uptake calibration, measurement of mixtures of radioisotopes, measurement of total exchangeable electrolyte, and medical applications of a five-watt Aerojet-General reactor. Details of the meeting are available from the secretary of the society, R. W. Lackey, 452 Metropolitan Bldg., Denver, Colo.

A joint U. S.-European Atomic Energy Community (EURATOM) working party has been holding discussions for the past fortnight at Luxembourg aimed at initiating a joint program for the development of full scale prototype power reactors. The meeting is a prelude to the visit to the U. S. this Spring of M. Louis Armand, president of EURATOM, for further discussions of this and other projects. (In Vienna, IAEA's board of governors began a series of discussions covering proposed projects including a health and safety program; inauguration of the agency's training program; establishment of a scientific advisory council; and a program to promote the wider use of radioisotopes.

CONFERENCES:- Papers have been submitted so far from twenty-nine nations for presentation at the second International Conference on the Peaceful Uses of Atomic Energy, scheduled for Sept. 1-13, 1958 in Geneva. It is expected that by the August 1st deadline a total of 2,500 papers will have been submitted. A preliminary analysis shows that some seventy-five of the papers deal with controlled thermonuclear reactions; countries discussing this topic include U. S., Britain, France, W. Germany, and Japan. (The USAEC and the State Department have budgeted $2,650,000 for the expense of U. S. participation in the scientific program of this Conference. Simultaneous with the scientific program will be the Atom Trade Fair in Geneva. For their exhibits, about 80,000 square feet have been reserved by the British; 40,000 by the French; and 10,000 by the Russians. Although 28,000 square feet are available to U. S. industrial firms, firm commitments are said to have been made to date for only 15,000 square feet.)

ATOMIC ENERGY PATENT DIGEST...recent grants...

ISSUED March 18th, 1958, to GOVERNMENTAL ORGANIZATIONS:- (1) Cooled nuclear reactor. C. R. Binner, C. B. Wilkie, inventors. No. 2,827,429 assigned to USAEC. (2) Stabilized oscillator. P. L. Jessen, H. J. Price, inventors. No. 2,827,569 assigned to USAEC.

ISSUED March 25th, 1958 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Method for producing titanium and zirconium. G. R. Findlay, inventor. No. 2,828,201 assigned to National Research Corp., Middlesex County, Mass. (2) Gauging the level of a body of liquid by using radioactive radiation. B. L. Steierman, inventor. No. 2,828,422 assigned to Owens-Illinois Glass Co. (3) Radiation detector device. S. A. Scherbatskoy, inventor. No. 2,828,423 assigned to PGAC Development Co., Houston, Texas.

ISSUED March 25th, 1958 to GOVERNMENTAL ORGANIZATIONS:- (1) Pulse amplitude analyzer. M. H. Greenblatt, inventor. No. 2,828,425 assigned to USAEC.

PEOPLE...in nuclear work...

L. Stewart Mims, who formerly directed nucleonics department of Bell Aircraft Co., is now with Atomics International division of North American Aviation, Inc.

James B. Williams is now manager, atomic instrument sales, Baird-Atomic, Inc., Cambridge, Mass. As chief physicist of Atomic Instruments, Inc., he had developed several new products before coming to Baird-Atomic.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear subjects...

Radioisotopes. Report of symposium on testing techniques using radioisotopes. 100 pages. --American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. ($2.75)

Thallium-204 Beta-Excited X-Radiography. Report of work done at U. S. Army's medical research laboratory, Fort Knox, Ky. No. PB-126731. (Microfilm; $2.40. Photostat; $3.30) --Library of Congress, Washington 25, D. C.

Logarithmic Amplifier for Nuclear Reactor Instrumentation. Description of amplifier designed and built specifically for use in the logarithmic channel of research reactor at the Naval research laboratory. No. PB-131303. 15 pages. --Office of Technical Services, Washington 25, D. C.

Nuclear Technology Briefs-Reactor Materials. Discussion of niobium as used in nuclear technology and a consideration of plutonium as reactor fuel, by Battelle Memorial Institute people. No. TI-3. --USAEC, Washington 25, D. C.

Our Nuclear Future: Facts, Dangers & Opportunities, by Edward Teller and Albert L. Latter. An account for the general public of nuclear weapons, radiation, etc. 184 pages. --Criterion Books, Inc., 257 4th Ave., New York, N.Y. ($3.50)

RAW MATERIALS...prospecting, mining, marketing...

CANADA:- Stanleigh Uranium Mining Corp., whose operations have been delayed by difficulties in underground work, and whose mill construction costs exceeded original estimates, is progressing satisfactorily, according to reports of the operation. The mill went into operation earlier this month, and ore of good assay is being uncovered. Result of the delays, however, was to bring overall costs to about $31 million, compared with an original estimate of around $26 million. (It is understood a note for several million dollars was backed by the firms which underwrote Stanleigh's original bond issue, to see the company to full operation.) Although operations have been delayed, first shipments of uranium precipitates are expected to be made before the end of April.

Bicroft Uranium Mines, which handled 1,268 tons per day during February, expects that March will show a better record; so far, the first 15 days of March were ahead of like period in February. Meanwhile, new levels are being developed by Bicroft, the 5th, 6th, 7th and 8th being pushed with all speed. (Bicroft has at hand contract for the sale of uranium concentrates to Eldorado Mining & Refining totaling some $34,805,000 to the end of March, 1962.)

Lorado Uranium Mines, in the Beaverlodge area of Northern Saskatchewan, is treating about 550 tons per day, according to an official of the company. Mill alterations at the site have been completed, and the company hopes that when its acid output is increased, the mine's production may be pushed to 700 tons per day. (The high carbonate ore here is the major obstacle; at present Lorado's sulphuric acid plant is producing 45 tons per day, not sufficient to treat this particular type ore.)

ITALY:- Two areas of Italy have shown promise so far as uranium ores are concerned, according to Prof. Felice Ippolito, secretary general of the Italian National Committee for Nuclear Research. In the Alpi Marittime and Cozie Mountains, prospectors have found deposits of 100,000 tons of ores assaying 0.15% uranium oxide, with possibly additional amounts of ores of this assay there. Final figures are expected to be at hand by the end of 1959. The other promising area is Val Gardena, where some 500,000 tons of ore with an average 0.2% content of uranium oxide have been surveyed. In this area, too, additional amounts of ores have been found, although of lower assay.

SOUTH AFRICA:- The monazite deposits in the area north of Van Rhynsdorp, in the Eastern Cape Province of the Union, continue to give excellent yields. For the past three years, the deposits have been mined and concentrated by Monazite & Mineral Ventures (Pty.), Ltd., a subsidiary of Anglo-American Corp. Both thorium and the rare earths are being extracted from the monazite sands.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

April 1st, 1958